

WHAT IS CLAIMED IS:

1. An electric power steering system comprising:

a first bevel gear driven into rotation by an electric motor;

5 a second bevel gear meshed with the first bevel gear with their axes intersecting each other and allowed to move toward the first bevel gear;

a biasing member for biasing the second bevel gear toward the first bevel gear;

10 a rack shaft linearly moved thereby steering steerable road wheels;

a rotary element rotatably supported by a rack housing via a rolling bearing as enclosing the rack shaft and operating to transmit the rotation of the electric
15 motor via the first bevel gear and the second bevel gear; and

a power conversion mechanism formed between the rotary element and the rack shaft for converting the rotary motion of the rotary element to the linear motion of the
20 rack shaft.

2. The electric power steering system as claimed in Claim 1, wherein the biasing member is interposed between an outer lateral surface of an outer ring of the rolling bearing and a biasing member seat of the housing opposite
25 from the outer lateral surface, thereby moving the second

bevel gear toward the first bevel gear in conjunction with the rotary element.

3. The electric power steering system as claimed in Claim 2, wherein the rack housing comprises a first housing
5 for supporting one end of the rotary element as allowing for the relative axial movement thereof, and a second housing for supporting the other end of the rotary element as inhibiting the relative axial movement thereof, and

wherein a housing adjuster provides for adjustment
10 of the relative axial positions of the first housing and the second housing with respect to the rack shaft.

4. An electric power steering system comprising:

a support shaft integrally rotatably connected with
an output shaft of an electric motor;

15 a first bevel gear provided at a distal end of the support shaft;

a support-shaft housing accommodating the support shaft and the first bevel gear;

a rack shaft linearly moved thereby steering
20 steerable road wheels;

a rack housing for supporting the rack shaft as allowing for the linear movement thereof;

a second bevel gear meshed with the first bevel gear with their axes intersecting each other;

25 a rotary element rotatably supported by the rack

housing as enclosing the rack shaft and operating to transmit the rotation of the electric motor via the first bevel gear and the second bevel gear;

a power conversion mechanism formed between the
5 rotary element and the rack shaft for converting the rotary motion of the rotary element to the linear motion of the rack shaft;

a retaining member mounted to the support-shaft housing as allowed to move axially of the support shaft
10 for rotatably retaining the support shaft via a bearing;
and

a retaining member adjuster for adjustment of the position of the retaining member relative to the support-shaft housing with respect to an axial direction
15 of the support shaft.

5. The electric power steering system as claimed in Claim 4, wherein a proximal end portion of the support shaft is retained by the retaining member via the bearing, whereas a distal end portion of the support shaft is
20 retained in a manner to be movable toward the second bevel gear and is biased toward the second bevel gear by a biasing member.

6. The electric power steering system as claimed in Claim 5, further comprising a joint for pivotally
25 connecting the proximal end portion of the support shaft

with the output shaft of the electric motor.

7. The electric power steering system as claimed in Claim 4, wherein the rack housing comprises a first housing for supporting one end of the rotary element as allowing
5 for the relative axial movement thereof, and a second housing for supporting the other end of the rotary element as inhibiting the relative axial movement thereof, and

wherein a housing adjuster provides for adjustment of the relative axial positions of the first housing and
10 the second housing with respect to the rack shaft.

8. An electric power steering system comprising:

a support shaft integrally rotatably connected with an output shaft of an electric motor;

a first bevel gear provided at a distal end of the
15 support shaft;

a second bevel gear meshed with the first bevel gear with their axes intersecting each other;

a rack shaft linearly moved thereby steering steerable road wheels;

20 a rotary element rotatably supported by the rack housing as enclosing the rack shaft and operating to transmit the rotation of the electric motor via the first bevel gear and the second bevel gear; and

a power conversion mechanism formed between the
25 rotary element and the rack shaft for converting the rotary

motion of the rotary element to the linear motion of the rack shaft;

wherein the support shaft is allowed to move toward the second bevel gear and is biased toward the second
5 bevel gear by a biasing member.

9. The electric power steering system as claimed in Claim 8, wherein the biasing member is interposed between the support shaft and the output shaft of the electric motor.

10 10. The electric power steering system as claimed in Claim 8, wherein an elastically deformable buffer member is interposed between the support shaft and a support-shaft housing supporting the support shaft.

11. The electric power steering system as claimed in
15 Claim 8, wherein the rack housing comprises a first housing for supporting one end of the rotary element as allowing for the relative axial movement thereof, and a second housing for supporting the other end of the rotary element as inhibiting the relative axial movement thereof, and

20 wherein a housing adjuster provides for adjustment of the relative axial positions of the first housing and the second housing with respect to the rack shaft.